

WHAT IS CLAIMED IS:

1        1. A tape optical fiber cord with an optical fiber array,  
2 comprising:

3              a fiber array connected to an optical waveguide; and  
4              a tape fiber comprising a tape core section produced by  
5 aligning a plurality of optical fibers to be fixed to the fiber  
6 array and forming the whole of the aligned optical fibers into  
7 a tape, said tape core section being disposed on the fixation  
8 side of the fiber array, said tape fiber in its predetermined  
9 position, remote from the tape core section, having been fixed,  
10 said plurality of optical fibers having been separated, at a  
11 part or the whole of the position intermediate between the two  
12 fixed portions, into a predetermined number of optical fiber  
13 units which is smaller in number than said plurality of optical  
14 fibers.

1        2. A tape optical fiber cord with an optical fiber array,  
2 comprising:

3              a fiber array connected to an optical waveguide; and  
4              a tape fiber comprising a tape core section produced by  
5 aligning, in a plurality of stages, a plurality of optical  
6 fibers to be fixed to the fiber array and forming the whole of  
7 the aligned optical fibers into a tape, said tape core section  
8 being disposed on the fixation side of the fiber array, said  
9 tape fiber in its predetermined position, remote from the tape  
10 core section, having been fixed, said plurality of optical  
11 fibers having been separated, at a part or the whole of the

12 position intermediate between the two fixed portions, into a  
13 predetermined number of optical fiber units which is smaller in  
14 number than said plurality of optical fibers.

1       3. A tape optical fiber cord with an optical fiber array,  
2 comprising:

3           a fiber array connected to an optical waveguide; and  
4           a tape fiber comprising a tape core section produced by  
5 aligning, in a plurality of stages, a plurality of optical  
6 fibers to be fixed to the fiber array and forming the whole of  
7 the aligned optical fibers into a tape, said tape core section  
8 being disposed on the fixation side of the fiber array, said  
9 tape fiber in its predetermined position, remote from the tape  
10 core section, having been fixed, said plurality of optical  
11 fibers having been arranged, at the position intermediate  
12 between the two fixed portions, in one stage, one by one  
13 parallel to one another and having been formed into a tape.

1       4. The tape optical fiber cord with an optical fiber  
2 array according to claim 1 or 2, wherein, in the tape fiber,  
3 the region in which said plurality of optical fibers have been  
4 separated into a predetermined number of optical fiber units  
5 which is smaller in number than said plurality of optical  
6 fibers, has been covered with a protective tube.

1       5. The tape optical fiber cord with an optical fiber  
2 array according to claim 3, wherein the portion, in which said  
3 plurality of optical fibers have been arranged in one stage one

4 by one parallel to one another and have been formed into a tape,  
5 has been covered with a protective tube.

1           6. The tape optical fiber cord with an optical fiber  
2 array according to claim 4 or 5, wherein the protective tube  
3 has been fixed to the predetermined position or a position near  
4 the predetermined position.

1           7. The tape optical fiber cord with an optical fiber  
2 array according to any one of claims 1 to 3, wherein a  
3 rearrangement section for rearranging the optical fibers is  
4 provided at the predetermined position or a position near the  
5 predetermined position.

1           8. The tape optical fiber cord with an optical fiber  
2 array according to claim 4 or 5, wherein a rearrangement  
3 section for rearranging the optical fibers is provided at the  
4 predetermined position or a position near the predetermined  
5 position, and one end of the protective tube has been fixed to  
6 one end of a case containing the rearrangement section.

1           9. The tape optical fiber cord with an optical fiber  
2 array according to claim 4 or 5, wherein a rearrangement  
3 section for rearranging the optical fibers is provided at the  
4 predetermined position or a position near the predetermined  
5 position, and one end of the protective tube has been fixed  
6 within a case containing the rearrangement section.

1        10. The tape optical fiber cord with an optical fiber  
2 array according to claim 3, wherein said plurality of optical  
3 fibers fixed to the fiber array are arranged in a plurality of  
4 columns of a plurality of stages, and the whole of the optical  
5 fibers has been formed into a tape.

1        11. The tape optical fiber cord with an optical fiber  
2 array according to claim 10, wherein the number of columns is 2  
3 and the number of stages is 2.

1        12. The tape optical fiber cord with an optical fiber  
2 array according to claim 4 or 5, wherein only one end of the  
3 protective tube has been fixed.

1        13. The tape optical fiber cord with an optical fiber  
2 array according to claim 4, wherein the protective tube has  
3 been fixed to optical fibers in a part of the region where the  
4 said plurality of optical fibers have been separated one by one.

1        14. The tape optical fiber cord with an optical fiber  
2 array according to claim 5, wherein, in a part of the region in  
3 which said plurality of optical fibers have been arranged in  
4 one stage one by one parallel to one another and have been  
5 formed into a tape, the protective tube has been fixed by the  
6 optical fiber tape.

1        15. The tape optical fiber cord with an optical fiber  
2 array according to claim 7, wherein the order of arrangement of

3 the optical fibers delivered from the rearrangement section in  
4 its side remote from the fiber array is identical to the order  
5 of arrangement of the optical fibers in the fiber array on the  
6 optical waveguide side.

1 16. The tape optical fiber cord with an optical fiber  
2 array according to claim 4 or 5, wherein the protective tube is  
3 formed of a flame-retardant material.

1 17. The tape optical fiber cord with an optical fiber  
2 array according to claim 4 or 5, wherein the protective tube  
3 has been fixed to the fiber array on its fixation side.

1 18. The tape optical fiber cord with an optical fiber  
2 array according to any one of claims 1 to 3, wherein the pitch  
3 of the optical fibers in the fiber array is the half of the  
4 pitch (half pitch) of the optical fibers in the tape fiber.